

### AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A probe assembly for use in the extraction of analytes from a liquid sample, which probe includes an elongate cylinder portion, a motor which is arranged to rotate the elongate cylinder portion about a longitudinal axis of the elongate cylinder portion and to move the elongate cylinder portion longitudinally to enable the cylinder to be immersed or removed from a sample vessel containing the liquid in the sample, and the elongate cylinder portion having thereon one or more vanes extending away from the cylinder portion, wherein the one or more vanes are coated with a solid phase as a means for extracting materials from the liquid sample in the sample vessel, and wherein the elongate cylinder portion is substantially hollow to allow gas to flow therethrough.
2. (Cancelled)
3. (Previously Presented) A probe assembly according to claim 1, wherein the probe is shaped to maximise the area of the solid phase on the probe that is in contact with a liquid phase.
4. (Previously Presented) A probe assembly according to claim 1, further comprising an extracting element, wherein the extracting element is connected directly to a means of rotation, and/or the probe is arranged to be rotated in the sample.
5. (Previously Presented) A probe assembly according to claim 1, wherein the probe is arranged to be an impeller in the sample.
6. (Previously Presented) A probe assembly according to claim 1, wherein the probe includes a rotating device.
7. (Previously Presented) A probe assembly according to claim 1, wherein the one or more vanes are in the form of paddles, shoulders, or blades, extending from the cylinder portion.

8. (Previously Presented) A probe assembly according to claim 1, wherein the elongate cylinder and/or the vanes are coated with a sorbent coating.
9. (Cancelled)
10. (Previously Presented) A probe assembly according to claim 1, wherein the hollow elongate cylinder includes one or more apertures or perforations, the apertures or perforations being arranged to permit gas to flow through the walls of the cylinder, or wherein the probe includes a sparger, to provide a diffuse stream of gas bubbles.
11. (Previously Presented) A probe assembly according to claim 1, wherein the probe further includes a sheath.
12. (Previously Presented) A probe assembly according to claim 11, which includes an elevation device arranged to move the elongate cylinder relative to the sheath.
13. (Previously Presented) A probe assembly according to claim 11, wherein an internal surface of the sheath and/or the elongate cylinder are coated.
14. (Previously Presented) A probe assembly according to claim 1, wherein the probe includes a heating device.
15. (Previously Presented) A probe assembly according to claim 1, which includes a housing having at least one inlet and at least one outlet arranged to permit entry and exit of gas to the probe assembly.
16. (Previously Presented) A probe assembly according to claim 7, wherein the one or more vanes are arranged to extend substantially around the cylinder portion so as to form a spiral thread.

17. (Previously Presented) A probe assembly according to claim 8, wherein the sorbent coating comprises polymethylsiloxane, polyethylene glycol, silicone, polyimide, octadecylchlorosilane, polymethylvinyl chlorosilane, liquid crystal polyacrylates, grafted self organised monomolecular layers or inorganic coating materials.

18. (Previously Presented) A probe assembly according to claim 10, wherein the sparger comprises a sintered glass frit.

19. (Previously Presented) A probe assembly according to claim 11, wherein the sheath is arranged to pierce or penetrate a septum.

20. (Previously Presented) A probe assembly according to claim 3, wherein the shape causes movement within the liquid such that there is a continuous exchange of liquid in contact with the solid phase.

21. (Currently Amended) A probe assembly for use in the extraction of analytes from a liquid sample, which probe includes a sheath and an elongate cylinder portion disposed within the sheath, wherein a motor is arranged to rotate the elongate cylinder portion ~~is arranged to rotate~~ about a longitudinal axis of the elongate cylinder portion and to move the elongate cylinder portion longitudinally within the sheath with a portion of the elongate cylinder portion moveable out of the sheath to enable the elongate cylinder portion to be immersed or removed from a sample vessel containing the liquid in the sample, and the elongate cylinder portion having thereon one or more vanes extending away from the elongate cylinder portion, wherein the one or more vanes are coated with a solid phase as a means for extracting materials from the liquid sample in the sample vessel, and wherein the elongate cylinder portion is substantially hollow to allow gas to flow therethrough.

22. (Currently Amended) A probe assembly for use in the extraction of analytes from a liquid sample, which probe includes an actuator and an elongate cylinder portion, wherein the

elongate cylinder portion is arranged to rotate about a longitudinal axis of the elongate cylinder portion and to move longitudinally to enable the elongate cylinder portion to be immersed or removed from a sample vessel containing the liquid~~in the sample~~, and wherein the actuator actuates rotation of the elongate cylinder portion about the longitudinal axis and actuates longitudinal movement of the elongate cylinder portion, wherein the elongate cylinder portion has thereon one or more vanes extending away from the elongate cylinder portion, wherein the one or more vanes are coated with a solid phase as a means for extracting materials from the liquid sample in the sample vessel, and wherein the elongate cylinder portion is substantially hollow to allow gas to flow therethrough.